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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,367	10/07/2003	Kenichi Yokoyama	5988-056-27	4296

7590 06/22/2005

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EXAMINER

LEE, SIN J

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,367

Applicant(s)

YOKOYAMA ET AL.

Examiner

Sin J. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5-27-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (6,136,500) in view of Nakano et al (JP 09-236923 and its English Chemical Abstract (1997:602802)).

Full, formal English translation of the Japanese document has been submitted. Only its English Chemical Abstract is available at this time.

In Example 7, Kobayashi teaches a positive tone resin composition containing an acid-decomposable group-containing resin (A-4), photoacid generators (B1-5), (B2-5), an acid diffusion controller, and a solvent (see Table 1).

Kobayashi does not teach present component (A) of formula (1). Nakano et al teaches that a photoresist composition containing imidazole derivative such as *1-benzyl-2-methylimidazole* shows good storage stability and provides resist patterns showing good adhesion to substrate (see Chem. Abstract). Based on this teaching, it would have been obvious to one skilled in the art to include an imidazole derivative compound such as 1-benzyl-2-methylimidazole in Kobayashi's positive tone resin composition of Example 4 in order to obtain good storage stability and provide resist patterns showing good adhesion to substrate. Therefore, Kobayashi in view of Nakano

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would render obvious present invention of claim 1 (1-benzyl-2-methylimidazole, which structure is shown on the second page of Chem. abstract, teaches present compound of formula (1) because present R^1 , R^3 , R^5 , and R^6 can all be H atoms, present R^2 can be an aryl group, and present R^4 can be an unsubstituted alkyl group of 1 carbon atom).

Kobayashi's photoacid generator (B1-5) is a sulfonium salt (see col.25, lines 16-29, col.16, lines 53-65). Therefore, Kobayashi in view of Nakano would render obvious present inventions of claims 2 and 3.

Kobayashi's resin (A-4) is a copolymer of p-hydroxystyrene and t-butyl acrylate (see col.25, lines 6-8). Therefore, Kobayashi in view of Nakano would render obvious present inventions of claims 4 and 5.

With respect to present claims 7-9, In Example 14, Kobayashi teaches a negative tone resin composition containing an alkali-soluble resin, a crosslinking agent, a photoacid generator B1-3, an acid diffusion controller, and a solvent (see Table 2).

Kobayashi does not teach present component (A) of formula (1). Nakano et al teaches that a photoresist composition containing imidazole derivative such as 1-benzyl-2-methylimidazole shows good storage stability and provides resist patterns showing good adhesion to substrate (see Chem. Abstract). Based on this teaching, it would have been obvious to one skilled in the art to include an imidazole derivative compound such as 1-benzyl-2-methylimidazole in Kobayashi's negative tone resin composition of Example 14 in order to obtain good storage stability and provide resist patterns showing good adhesion to substrate. Therefore, Kobayashi in view of Nakano would render obvious present invention of claim 7 (1-benzyl-2-methylimidazole, which

structure is shown on the second page of Chem. abstract, teaches present compound of formula (1) because present R^1 , R^3 , R^5 , and R^6 can all be H atoms, present R^2 can be an aryl group, and present R^4 can be an unsubstituted alkyl group of 1 carbon atom).

Kobayashi's photoacid generator (B1-3) is a sulfonium salt (see col.25, lines 16-29, col.16, lines 30-40). Therefore, Kobayashi in view of Nakano would render obvious present inventions of claims 8 and 9.

3. Claims 1-3 and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasawa et al (US 2001/0041769 A1) in view of Nakano et al (JP 09-236923 and its English Chemical Abstract (1997:602802)).

Iwasawa teaches (see [0276] and [0285]) a positive radiation-sensitive resin composition comprising (i) an alkali insoluble or alkali low soluble polysiloxane resin (1), which has an acid-dissociable group (for the structure of polysiloxane, see [0012]) and (ii) a photoacid generator.

Iwasawa does not teach present component (A) of formula (1). Nakano et al teaches that a photoresist composition containing imidazole derivative such as *1-benzyl-2-methylimidazole* shows good storage stability and provides resist patterns showing good adhesion to substrate (see Chem. Abstract). Based on this teaching, it would have been obvious to one skilled in the art to include an imidazole derivative compound such as 1-benzyl-2-methylimidazole in Iwasawa's positive resin composition in order to obtain good storage stability and provide resist patterns showing good adhesion to substrate. Therefore, Iwasawa in view of Nakano would render obvious present inventions of claims 1 and 6 (1-benzyl-2-methylimidazole, which structure is

shown on the second page of Chem. abstract, teaches present compound of formula (1) because present R^1 , R^3 , R^5 , and R^6 can all be H atoms, present R^2 can be an aryl group, and present R^4 can be an unsubstituted alkyl group of 1 carbon atom).

In [286], Iwasawa teaches that examples of his photoacid generators include onium salts, halogen-containing compounds, diazoketone compounds, sulfone compounds, and sulfonate compound. Based on this teaching, one skilled in the art would immediately envisage using onium salts as Iwasawa's photoacid generator since there are only five categories of compounds listed. Therefore, Iwasawa in view of Nakano would render obvious present inventions of claims 2 and 3.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. J. L.

S. Lee
June 17, 2005

Sin J. Lee

**SIN LEE
PRIMARY EXAMINER**